

Appl. No. 10/750,059  
Amdt. dated Jan.17, 2006  
Reply to Office action of Oct. 20, 2005

**Remarks/Arguments**

Applicant thanks Examiner Le for his careful examination of this application and for the clear explanation of the claim objections and rejections. In response, applicant amends claims 3 and 4 so they properly depend from claim 1.

Regarding claim 1, applicant respectfully submits that because the Wu patent cited in the Office Action fails to disclose all the limitations in it, it is not anticipated by the Wu patent. And because claims 3, 4, 6, 8-11, and 28-29 properly depend from claim 1, they also are not anticipated and can be rendered obvious:

**Claim 1**

Claim 1 describes a interconnect structure that includes a conductive contact pad with the following limitations:

- a. a first elastic modulus,
- b. an inner portion; and
- c. an outer portion surrounding the inner portion.

The Office Action identifies, from the Wu structure, the following: "a conductive contact pad 84... having a first elastic modulus..., having an inner portion and an outer portion 68... surrounding the inner portion...."<sup>1</sup>

If element 84 is the conductive contact pad and element 68 is the outer portion, then where is the inner portion of the contact pad that is surrounded by element 68?

The specification of the Wu patent describes the elements 84 and 68 in the following paragraph and it makes clear that element 68 can not be considered as the "outer portion" of the a contact pad as described in claim 1 of the instant application:

---

<sup>1</sup> Office Action of Oct. 20, 2005, ¶5.

In the next step of the process, a photolithography method is used to define the metal trace layer 76, as shown in FIG. 2J to form the plurality of metal traces 78. It is to be noted that each of the metal traces 78 connects only to one of the plurality of metal studs 68 at the periphery of the IC die 50 with an opposite end of the metal traces 78 extending toward a center of the IC die 50 on top of the second stress buffer layer 71, i.e. transforming I/O pads from a peripheral array to an area array.

After the formation of the plurality of metal traces 78, a passivation layer 82 is first deposited on top of the metal traces 78 and then patterned to expose areas of the metal traces 78 at locations for the second I/O pads. A suitable material for depositing the passivation 82 may be an elastomeric material or a material such as polyimide or BCB. The passivation layer 82 is first blanket deposited and then patterned to form openings 83 for the second I/O pads 84.<sup>2</sup>

It is clear from the above description that element 68 is a metal stud that connects a first I/O pad 54 to a second I/O pad 84. Element 68 is not an outer portion of a contact pad and it does not surround any "inner portion" of a contact pad as required by claim 1 of the instant application.

Since the Wu patent clearly fails to disclose at least this combination of limitations, it does not anticipate claim 1 and applicant respectfully submits that claim 1 stands patentable over the Wu patent.

### Claim 3

Regarding claim 3, the Office Action cites the Kwon patent as disclosing "a interconnect structure wherein the compliant layer 15, col. 3 line 17, comprises a metal." This argument is not supported by the Kwon patent, of which the sentence that contains the line cited in the Office Action is copied below:

At the upper surface of the electrically conductive, compliant material 15 there is a contact layer 16, which may, for example, be a relatively thin layer of a conductive metal, such as gold, for contact with one or more contacts of an integrated circuit chip to be tested.<sup>3</sup>

It is clear that Kwon discloses a thin layer of metal over the compliant material. It does not disclose the compliant layer itself comprises a metal as

---

<sup>2</sup> US 6,433,427, col. 9, ll. 16-32.  
<sup>3</sup> US 5,187,020, col. 3, ll. 16-21.

Appl. No. 10/750,059  
Amdt. dated Jan.17, 2006  
Reply to Office action of Oct. 20, 2005

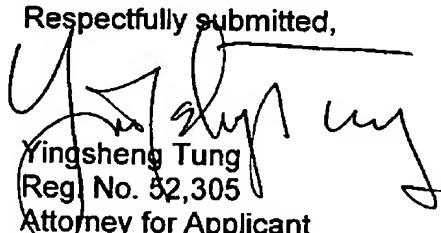
required in claim 3 of the instant application. Because neither the Wu patent nor the Kwon patent discloses the combination in claim 3, they do not render claim 3 obvious and applicant respectfully submits that claim 3 stands patentable.

Claims 4, 6, 8-11, 28, and 29

As presented in response to the Office Action of July 14, 2005, claims 4, 6, 8-11, 28, and 29 properly depend from claim 1 with additional claim limitations. In particular, claim 28 further limits the compliant layer to a polymer, claim 29 further limits the compliant layer to a dielectric material; claim 4 further limits the contact pad to copper and the compliant layer to a lower elastic modulus material; claim 6 further limits the structure of the compliant layer; claim further limits the relative property of the inner and outer portions of the contact pad; claim 9 further limits the dimension of the opening; claim 10 further describes an additional solder contact attached to the contact surface; and claim 11 further limits the relative thickness of the compliant layer and the contact pads. These claims stand patentable at least by virtue of their dependence.

In summary, applicant respectfully submits that this application is in allowable form and all pending claims distinguish over the cited references in the Office Action. Applicant respectfully requests further examination of this application and timely allowance of the pending claims.

Texas Instruments Incorporated  
P. O. Box 655474 MS 3999  
Dallas, TX 75264  
(972) 917-5355

Respectfully submitted,  
  
Yingsheng Tung  
Reg. No. 52,305  
Attorney for Applicant